(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



1 1001 ALIAN BARTAN BARTAN

(43) International Publication Date 20 March 2003 (20.03.2003)

PCT

(10) International Publication Number WO 2003/023179 A3

(51) International Patent Classification7:

E21B 43/10

(21) International Application Number:

PCT/US2002/025727

(22) International Filing Date: 14 August 2002 (14.08.2002)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/317,985 60/318,386 6 September 2001 (06.09.2001) US 10 September 2001 (10.09.2001) US

(71) Applicant (for all designated States except US): ENVENTURE GLOBAL TECHNOLOGY [US/US]; 16200 A. Park Row, Houston, TX 77084 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): WADDELL, Kevin

[US/US]; 11007 Sprucedale Court, Houston, TX 77070 (US). RING, Lev [RU/US]; 14126 Heatherhill Place, Houston, TX 77077 (US). BRISCO, David, PAUL [US/US]; 405 Westridge Drive, Duncan, OK 73533 (US).

(74) Agents: MATTINGLY, Todd; et al.; Haynes and Boone, LLP, 1000 Louisiana Street, Suite 4300, Houston, TX 77002-5012 (US).

(81) Designated States (national): A.F., A.G., A.L., A.M., A.T., A.U., A.Z., B.A., B.B., B.G., B.R., B.Y., B.Z., C.A., C.H., C.N., C.O., C.R., C.U., C.Z., D.E., D.K., D.M., D.Z., E.C., E.E., E.S., F.I., G.B., G.D., G.E., G.H., G.M., H.R., H.U., I.D., I.L., I.N., I.S., J.P., K.E., K.G., K.P., K.R., K.Z., L.C., L.K., L.R., L.S., L.T., L.U., L.V., M.A., M.D., M.G., M.K., M.N., M.W., M.Z., N.O., N.Z., P.L., P.T., R.O., R.U., S.D., S.E., S.G., S.I., S.K., S.L., T.J., T.M., T.R., T.T., T.Z., U.A., U.G., U.S., U.Z., V.N., Y.U., Z.A., Z.W.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM).

[Continued on next page]

(54) Title: SYSTEM FOR LINING A WELLBORE CASING

30d 100 30e 30 30a 26c 26b 26 22c 22 20c 20a 16d 102 185 180

(57) Abstract: A system for lining a wellbore casing.

INTERNATIONAL SEARCH REPORT

International application No.

A. CLASSIFICATION OF SUBJECT MATTER PC(7): E21B 4310 US CL: 166/380, 207 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 13-15,17,18,21-23.25-31, and 33 X US 6,085,338 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. 1,4-7,11-19, and 21-35 X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-36 Further documents are listed in the continuation of Box C. See patent family annex. **Special categories of cited documents: 77 **Special categories of cited documents: 77 **Counter defining the general state of the art which is not considered to be of particular relevance to the condition of the condition cannot be organized to mirror the supplication or patent bubbled on or after the international filing date or priority date and not in conflict with the application of condition and to the condition of cannot be considered to involve an inventive step condition of cannot be considered to involve an inventive step condition of or cannot be considered to involve an inventive step.* **C** control of particular relevance to claim of animotic cannot be considered to involve an inventive step.*
U.S. : 166/380, 207 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S. : 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 31,315,17,18,21-23,25-31, and 33 31,47,111-19, and 21-33 X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 33-36 Further documents are listed in the continuation of Box C. 5 Special categories of cited documents: 6 See patent family annex. 7 Special categories of cited documents: 7 Special categories of cited documents: 8 See patent family annex. 1 Special categories of cited documents: 1 Special categories of cited documents: 1 Special categories of cited documents: 2 See patent family annex. 3 See patent family annex. 3 See patent family annex. 5 Special categories of cited documents: 4 Special categories of cited documents: 5 Special categories of cited documents: 5 Special categories of cited documents: 6 See patent family annex. 7 Special categories of cited documents: 7 Special categories of cited documents: 6 See patent family annex. 7 Special categories of cited documents: 7 Special categories of cited documents: 8 See patent family annex. 9 See patent family annex. 1 Special categories of cited documents:
According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U.S.: 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 31, and 33 X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-36 See patent family annex. **Liter document familing the general state of the art which is not considered to be of particular relevance. **Tocument defining the general state of the art which is not considered to be of particular relevance.
Minimum documentation searched (classification system followed by classification symbols) U.S.: 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
U.S.: 166/380, 207, 378, 212, 217, 242.6 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 31, and 33 X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-36 See patent family annex.
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
C. DOCUMENTS CONSIDERED TO BE RELEVANT Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X
Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 13-15,17,18,21-23,25-31, and 33 1,4-7,11-19, and 21-35 X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. 31, and 33 1,4-7,11-19, and 21-35 X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-3-36 Further documents are listed in the continuation of Box C. See patent family annex. 33-36 * Special categories of cited documents: "T" tater document published after the international filing date or priority date and not in continuit with the application but cited to understand the principle of theory underlying the invention of particular relevance "X"
Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 13-15,17,18,21-23,25-31, and 33 1,4-7,11-19, and 21-35 X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. 31, and 33 1,4-7,11-19, and 21-35 X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-3-36 Further documents are listed in the continuation of Box C. See patent family annex. 33-36 * Special categories of cited documents: "T" tater document published after the international filing date or priority date and not in continuit with the application but cited to understand the principle of theory underlying the invention of particular relevance "X"
Category * Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. 13-15,17,18,21-23,25-31, and 33 1,4-7,11-19, and 21-35 X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. 31, and 33 1,4-7,11-19, and 21-35 X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. 13-15,17-23,25-31, and 33-3-36 Further documents are listed in the continuation of Box C. See patent family annex. 33-36 * Special categories of cited documents: "T" tater document published after the international filing date or priority date and not in continuit with the application but cited to understand the principle of theory underlying the invention of particular relevance "X"
X US 6,070,671 A (CUMMING et al.) 06 June 2000 (06.06.00), figures 1 and 2. X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. Substituting the continuation of Box C. See patent family annex. Special categories of cited documents: "T" "A" document defining the general state of the art which is not considered to be of particular relevance "X" "A" document of particular relevance; the claimed invention cannot be continuation cannot be compared to the continuation of particular relevance; the claimed invention cannot be compared to the continuation of particular relevance; the claimed invention cannot be compared to the continuation of particular relevance; the claimed invention cannot be continuation of particular relevance; the claimed invention cannot be continuation of particular relevance; the claimed invention cannot be continuation.
X US 6,085,838 A (VERCAEMER et al.) 11 July 2000 (11.07.00), figures 5-7. X SU 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. See patent family annex. * Special categories of cited documents: "T" later document defining the general state of the art which is not considered to be of particular relevance "X" document defining the general state of the art which is not considered to be of particular relevance; the claimed invention cannot be
W Special categories of cited documents: * A document defining the general state of the art which is not considered to be of particular relevance: * Special categories of cited documents: * T atter document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be
Su 1086118 A (GARIFOV) 15 April 1984 (15.04.84), figures 1 and 2. Further documents are listed in the continuation of Box C. Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Further documents are listed in the continuation of Box C. See patent family annex. The document gublished after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be
Further documents are listed in the continuation of Box C. See patent family annex. The document gublished after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be
Further documents are listed in the continuation of Box C. See patent family annex. The document defining the general state of the art which is not considered to be of particular relevance See patent family annex. The document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
"A" document defining the general state of the art which is not considered to be of particular relevance "X" date and not in conflict with the application but cited to understand the principle or theory underlying the invention document of particular relevance; the claimed invention cannot be
"A" document defining the general state of the art which is not considered to be of particular relevance "X" document of particular relevance; the claimed invention cannot be
of particular relevance "X" document of particular relevance; the claimed invention cannot be
Leaving application of minimal participants and a state of the control of the con
when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to
establish the publication date of another citation or other special reason (as "Y" document of particular relevance; the claimed invention cannot be specified)
combined with one or more other such documents, such combination
"O" document referring to an oral disclosure, use, exhibition or other means being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the "&" document member of the same patent family
priority date claimed
Date of the actual completion of the international search Date of mailing of the international search report
07 October 2002 (07.10.2002) Name and mailing address of the ISA/US Authorize of officer //
Name and mailing address of the ISA/US Application of the ISA/US
Commissioner of Patents and Trademorks
Commissioner of Patents and Trademarks Box PCT David Ragnell